



李明东

个人主页: mingdong-li.github.io Google Scholar

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教育经历

- 香港科技大学** 2021.09 - 2025.07 (expected)
博士在读, PhD in Individualized Interdisciplinary Program (Robotics and Autonomous System)
Computational Cognitive Engineering Lab
导师: Prof. Yiwen WANG, Prof. Qifeng CHEN (co-supervision)
- 海德堡大学** 2024.12 - 2025.02
访问学者, BMBF Research Group at Interdisciplinary Center for Scientific Computing
Dynamical Systems and Artificial Intelligence Lab
Supervisor: Prof. Zahra Monfared
- 浙江大学** 2018-2021
硕士, 机械设计及理论
流体动力与机电系统国家重点实验室
导师: 冯毅雄教授 (谭建荣院士团队)
- 同济大学** 2013-2018
学士, 机械设计制造及其自动化
中德机械工程创新试验区 (荣誉班级)

研究兴趣

脑机接口, NeuroAI, 类脑智能, 认知分析

当前工作

- Mingdong Li**, Shuhang Chen, Zhiwei Song, Xiang Zhang, Camilo Libedinsky, Rosa So, Yiwen Wang*. Assessing Modifications of Functional Neural Connectivity in Point Process Filter for Neuroprosthetic Control, *IEEE Transactions on Biomedical Engineering*. (即将提交)
- Zhiwei Song, Xiang Zhang, **Mingdong Li**, Jieyuan Tan, Yiwen Wang*. An Online Knowledge Transfer Framework for Task Learning in Brain-Machine Interfaces, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. (在审)

论文发表 (期刊)

- Mingdong Li**, Shuhang Chen[†], Xiang Zhang, Yiwen Wang*. Neural Correlation Integrated Adaptive Point Process Filtering on Population Spike Trains, 2025, *IEEE Transactions on Neural Systems and Rehabilitation Engineering* (IF=4.8). (接收, [†]: co-first author)
- Mingdong Li**, Shanhe Lou*, Hao Zheng, Yixiong Feng, Yicong Gao, Siyuan Zeng, Jianrong Tan. A Cognitive Analysis-based Key Concepts Derivation Approach for Product Design, 2024, *Expert Systems With Applications* (IF=7.5).
- Mingdong Li**, Shanhe Lou*, Yicong Gao, Hao Zheng, Bingtao Hu, Jianrong Tan. A Cerebellar Operant Conditioning-inspired Constraint Satisfaction Approach for Product Design Concept Generation, 2023, *International Journal of Production Research* (IF=7.0).
- Xuanyu Wu, Zhaoxi Hong*, Yixiong Feng, **Mingdong Li**, Shanhe Lou, Jianrong Tan. A Semantic Analysis-driven Customer Requirements Mining Method for Product Conceptual Design, 2022, *Scientific Reports* (IF=3.8).

5. Yixiong Feng, **Mingdong Li**, Shanhe Lou*, Yicong Gao, Jianrong Tan. A Digital Twin-Driven Method for Product Performance Evaluation Based on Intelligent Psycho-Physiological Analysis, 2021, *ASME Journal of Computing and Information Science in Engineering* (IF=2.6).

论文发表（会议/专利）

1. **Mingdong Li**, Mingyi Wang, Yiwen Wang*. An Adaptive Superposition Point Process Model with Neuronal Encoding Engagement Identification, *2024 46th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)* (Oral).

2. Zixu Wang, Shuhang Chen†, **Mingdong Li**, Yiwen Wang*. Tracking Dynamic Conditional Neural Correlation during Task Learning, *2024 46th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)* (†: co-first author. Oral).

3. **Mingdong Li**, Jieyuan Tan, Zhiwei Song, Yiwen Wang*. Modeling Neural Population Dynamics in a Point Process Filter for Neuroprosthetics Control, *Annual Conference of International Association of Neurorestoratology (IANR) 2024* (Abstract, Poster).

4. **Mingdong Li**, Shuhang Chen, Zhijia Zhao, Yiwen Wang*. Tracking the Dynamic Functional Neural Connectivity via Conjugate Gradient Optimization, *2023 45th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)* (Oral).

5. **Mingdong Li**, Shuhang Chen, Xi Liu, Zhiwei Song, Yiwen Wang*. Modeling Neural Connectivity in a Point-Process Analogue of Kalman Filter, *2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)* (Poster).

6. 冯毅雄, **李明东**, 高一聪. CN110090818B, 发明专利授权, 2020

7. 李梦茹, 张引强, 徐楠婕, **李明东**, 刘铄. CN106127958B, 发明专利授权, 2018

项目经历

1. 记忆编码研究, 北京天坛医院神经外科-HKUST 2024.10-至今
• 主导开展帕金森患者记忆任务中黑质 (substantia nigra) 神经元编码分析

2. 大鼠电极植入手术负责人, Computational Cognitive Engineering Lab 2023.9-2024.9
• 组织开展大鼠 M1-mPFC 脑区微丝电极植入手术 30 余场
• 针对课题组新生手术教学

3. 大鼠行为训练负责人, Computational Cognitive Engineering Lab 2022.9-2023.9
• 组织开展大鼠压杆行为训练, 累计记录超 130 天
• 行为数据与神经信号采集设备的维护、更新

4. 国家自然科学基金面上项目: 支持设计认知的机械产品创新设计理论、方法及应用研究. 参与

5. 国家重点研发项目课题: 复杂产品全生命周期价值链协同平台研发. 参与

学术服务

1. 审稿人: ISBI2025, NER2025, TIV, 图学学报

2. 会议组委会, 4th International Workshop on Neural Engineering & Rehabilitation 2023.08

3. 会议组委会, 3rd International Workshop on Neural Engineering & Rehabilitation 2022.05

教学与指导

1. 课程助教, EMIA4110 Practical Machine Learning 2024 春季学期

2. 课程助教, ELEC4130 Machine Learning on Images 2023 春季学期

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|---|---------------|
| 3. 学生指导：动物神经信号的点过程建模分析 (HKUST) | 2024.6-2024.9 |
| • 胡天翊，中国科学技术大学本科生，将于 2025 入学 HKUST | |
| 4. 学生指导：大鼠 M1-mPFC 脑区微丝电极植入手术教学 (HKUST) | 2023.9-2024.9 |
| • 邱士乘，HKUST MPhil student | |
| 5. 学生指导：产品设计认知实验，语言与 EEG 数据处理，论文写作 (浙江大学) | 2020.9-2022.9 |
| • 吴轩宇，浙江大学博士生 | |

国际合作

Prof. Jose Principe, University of Florida
Prof. Zahra Monfared, Heidelberg University
Prof. Camilo Libedinsky, National University of Singapore

个人技能

SD Rat 双脑区微丝电极植入手术
动物行为训练系统、神经信号采集系统搭建与应用
编程: Python/Matlab/C++/Pytorch toolbox
语言: 中文 (母语), 英语 (熟练), 德语 (中等)

个人荣誉及奖项

DAAD AInet fellowship (AI4Science), 德国学术交流中心	2024
NextGen Scholar Award, IEEE Annual International Conference of EMBS	2024
浙江大学研究生毕业学年奖学金 (前 1%)	2021
2019 之江杯全球人工智能竞赛-多目标跟踪赛道, 优胜奖 (6-12 名), 之江实验室	2019
第七届全国大学生机械设计创新竞赛, 一等奖	2016
同济大学学术奖学金, 二等 2 次、三等 1 次	2013-2018